



**ANALYSIS AND OVERVIEW ABOUT THE INNOVATIVE
METOD THE “STABLE CAVITATION” FOR TREATMENT
OF LOCALIZED ADIPOSITY AND AEDEMA - FIBRO-
SCLEROTIC PANNICULOPATY.
USE OF GENERATOR AT “CAVITATION” DOMINANCE.
MONITORING AND FOLLOW - UP OF BLOOD AND
URIN PARAMETERS ON 3 GROUPS OF 7 PATIENTS EACH.**

Dr. Scandura

ABSTRACT

Excess of localized volume on adipose tissue could be hypertrophic, hyperplastic or mixed .To treat this pathologic conditions, till today, different technologies and devices have been used without satisfactory results.

A completely new technology is described in this article, using a new concept of physics applied to medicine treatments throughout a very special effect produced from ultrasound waves. This effect is called “stable cavitation”.

The scientific material described in this paperwork was obtained using a new device able to produce “stable cavitation” that works, on selective way, on the adipocities cells.

This is the reason why this technology works mostly on the treatment of fat areas and cellulites.

The goal of this paperwork is to demonstrate that there are not collateral or significant side effects using stable cavitation generator.

3 Groups of 7 patients will be treated with the same protocol with the MEDICELL.

Blood and urine parameter was collected before and after each treatment. An ultrasound image monitoring of the patient will be done at the end of treatment to evaluate damages on the liver.

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INTRODUCTION

We define localized adiposity on the body areas, of male or female, the sites where the adipose tissue is staying in a abnormal quantity, due to a reduction of lipolitic activity related to sexual hormones. These areas the stock of fat is also due to over alimentation, social economic conditions and cultural conditions.

The adipose areas in a female body are easily recognized on the lower part, sides, gluteus, abdomen, knee and the superior part of leg. In this female parts of body the adipose material became more solid due to the reason that meanwhile the liposintesys are normal ,the lipolisys is stopped from the estrogenic local activity.

General stimulus to lipolisys inducted throughout diets, have the effect to lose fat only on the body areas where the metabolism of fat is normal. This is the reason why we will increase the not harmonic localized reduction of fat areas.

For example is normal, in mostly of the woman, to observe loosing of the adipose tissue from the face, the breast etc., but not from the back that don't lose fat anyway.

A lot of paper works are published (Pf. Ceccarelli, Dr. Di Carlo, Pf. Bartoletti.) on the lipoclasys using ultrasound. New technologies allow upgrading these methods of reduction of fat well described in bibliography.

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MATERIALS AND METHODS

The device named “Medicell” working at cavitation effect (Trade mark), is the result of long time research on the effects of cavitation on the human body. Really the effects of cavitation on human body are under deeply studies from 40 years ago, mostly from American researchers, This scientific works are completely on web site of NASA. Italian researchers developed the knowledge about cavitation and ultrasound at the same time and are at the same level of knowledge of the American scientist. Dott. Ceccarelli. Dott. Zocchi and the Pf De Giuseppe used effect of cavitation on treatment of localized fat areas, cellulites and others field of medicine since years '70.

LONG TIME EXPERIENCE USING MEDICELL

Coming from long time use of cavitation machines for invasive internal liposuction utilized to a lot of surgeon all over the world.

After a deep analysis of experience with others surgery centres using this technology.

After years of experience and hundreds treatments of liposurgery using internal invasive ultrasonic cavitation.

Taking note of basis paper works published by Dr Ceccarelli, Pf Zocchi and Pf Di Giuseppe etc.

After a continuous and deep work with electronic engineers and applied physics specialist in medicine on theme of stable cavitation.

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Today we can say what follows:

The Treatment of adipose, obesity and cellulites using cavitation with frequency around 20.000 Hz is actually the less aggressive and more safety system to face this problem. This is due to the great selectivity on the adipocitis cells used by cavitation technology on the fat tissue.

Basing on this experience we can say:

Cavitation, (Produced using a multifrequency generator connected with a titanium cannula inserted in a fat area) working selectively on the thin adipocities membrane using compression waves, produces the break of the membrane of adipocitis.

The cellular wall of the adipocitis is very thin and not resistant compared to other cells of the body (Muscular fibrillas, epidermidis cells and so on).

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DEVELOPING A HEADPROBE USING ULTRASOUND WITH CAVITATION DOMINANCE.

After this experience the research group decided to transfer this type of technology to an EXTERNAL HEADPROBE with a surface action , easy to use for all the operators but at the same time able to produce good results comparable to invasive liposuction.

A big technological and financial effort was produced in order to transfer on the external not invasive probe the physical effect of induced cavitation at frequency between 20 to 70 KHz.

This is a new technology (patent pending). Companies and competitors are working on this field and a lot of confusion is produced in this period in the market about this new technology.

This new tech has been developed thanks to new products recently appeared on the market. New ceramics quartz with power up to 100 w/cmsq and new 64 bit high speed processor are able to control the generation of power using a vectorial summary of the emitted power. This new technologies allows the system to control in real time power, deepness, randomization of generation of micro bubbles of cavitation and size and shape of the stimulus.

The technological innovation into the devices SHDB-MEDICELL (Superficial High Definition Body Contour) is due, basically from the idea to have an external headprobe treating the adipose area, to a very sophisticated control and manage of the ultrasound cavitation waves.

The capability of high speed and performance processor allows to produce the “stable cavitation “in randomized mode, focused or ellipse shape mode.

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BASIC CONCEPT

- 1. The “stable cavitation” is a physical phenomenon produced in ultrasonic BF (20-70 KHz) using high pressure stimulation. This both physical conditions generate “cavitation” phenomena. In other words “Cavitation” produces micro vacuum bubbles (empty) that become bigger from small and at the end imploded delivering energy.**
- 2. Micro bubbles produced by “cavitation” have high level of energy inside. The final implosion produces a shock at high value of pressure.**
- 3. Into fat and cellulites areas the micro bubbles are generated under microprocessor control with a power and action field managed by the software built inside the device.**
- 4. Producing continuously vacuum micro bubbles close to the membrane wall of the adiposities we have the effect of breaking the membrane cell in all spatial dimension (3D cavitation)**
- 5. This type of work could be defined “three-dimensional liposculpture” , possible only under microprocessor control.**
- 6. The software that produces three-dimensional randomized generation of stable cavitation is under “patent pending” and basically it is the difference between a normal noisy cavitation produced throughout a normal ultrasound generator.**
- 7. Micro bubbles in “Stable cavitation” have max 400 microsecond of life and do not diffuse in uncontrolled chain multiplication but only in a controlled process by device’s panel parameters controls.**

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8. The detected noise in patient ears, mostly in the first treatment, is a phenomenon due to the Fourier low harmonics of the cavitation generator.

WORK PROTOCOLS FOR PATIENTS GROUPS

The purpose of this paperwork is to verify the variations of triglycerides on the urines and the blood related to the treatment parameters and to control the echo image response of the liver tissues before and after the cycles of treatments.

3 groups of 7 patients, all female between 18 to 45 years old were selected. During the treatment all the patient have followed a basic diet using basic parameters (constant norm caloric diet).

The 3 groups of 7 patients were followed into 3 different cities Milan, Lecco and Bergamo in the period between February and June 2005.

Trochanteric areas were treated at 70% of power available on the machine. For every 3 treatments for each patient blood and urine parameters was detected before the treatment, after 4 hours and after 48 hours.

Treatment was 45 minutes long on 400 cm² area at 7 days of time distance between one treatment and the other one.

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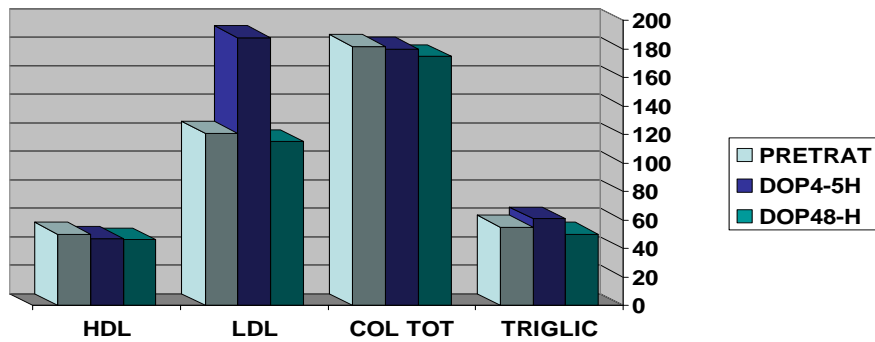


Results are described on the following pictures:

FIRST GROUP

Shdb treatments middle values on seven treated patients

TRATTAMENTI SHDB VALORI MEDI SU SETTE PAZIENTI ANALIZZATI



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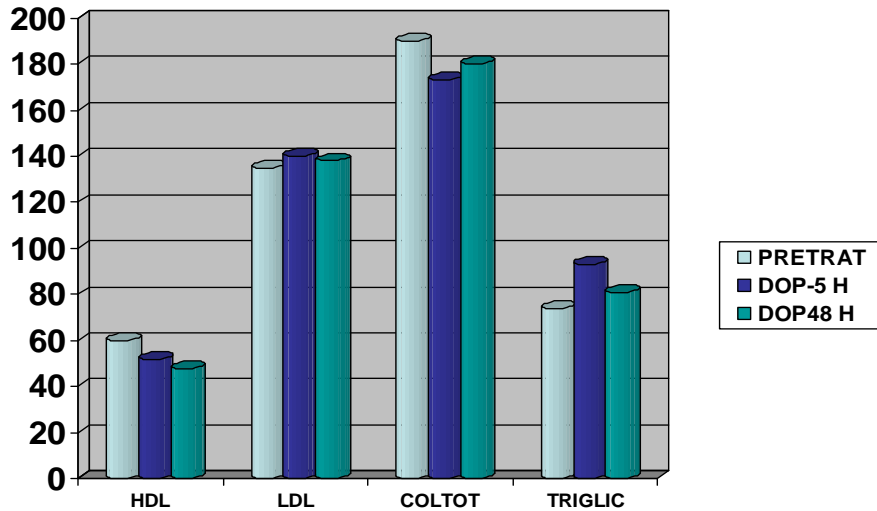
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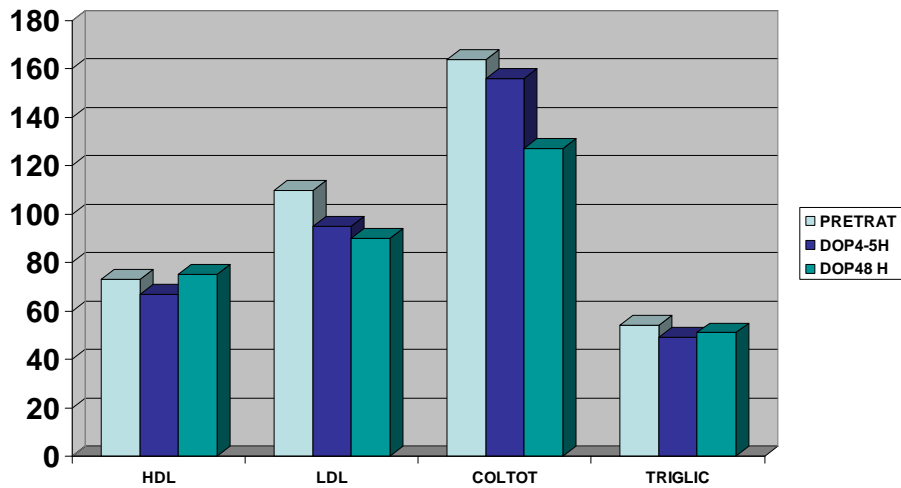
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CONCLUSIONS

Based on the clinical tests (blood and urine monitoring, ultrasound imagine detection of the treated areas and on the liver parameters etc..) done on 21 patients we can say that we have no side effects connected with the use of “stable cavitation generator”.

To be more precise: SHDB-MEDICELL device used following work protocols and user manual is safe and no side effects have been detected after 2 years on the same patient treated.

Other clinical paper works are going on to be finished with long term monitoring of basic parameters and long time evaluation of shape stability with very good results.

This coming paper works are to be finished collecting data from a lot of medical centres using the machine on a group of hundreds of patients.

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